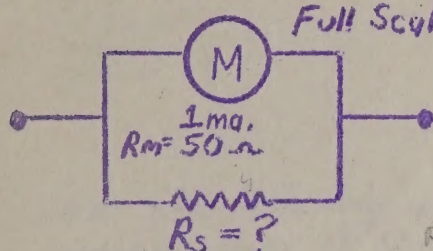


ELECTRONICS TECHNICIAN

Name LUCAS AGUSTIN  
Date APR-2-56

Examination

1. Ammeter



Full Scale = 5000 uamps

$$1 \times 10^{-3} \times 5 \times 10 = 5 \times 10^{-2} \text{ VOLTS}$$

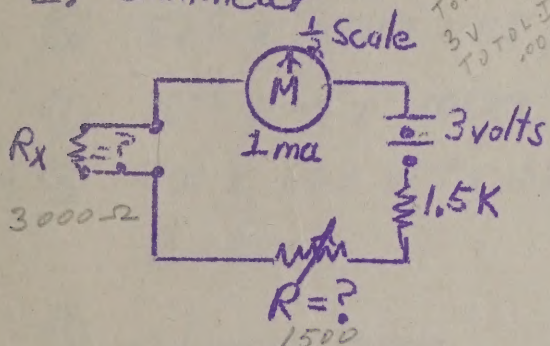
$$5 - 1 = 4 \text{ Ma. THROUGH } R_s.$$

$$R_s = ?$$

$$12.5 \Omega$$

$$R_s = \frac{5 \times 10^{-2}}{4 \times 10^{-3}} = 1.25 \times 10 = 12.5 \Omega$$

2. Ohmmeter



1/2 Scale

TOTAL E 3V  
TOTAL I .001

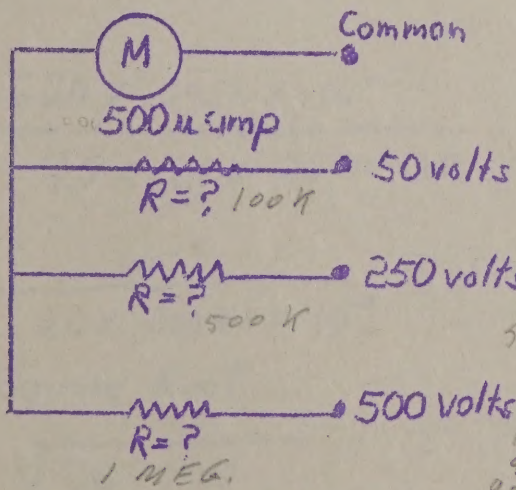
$$R_s \text{ FULL SCALE} = \frac{3}{1 \times 10^{-3}} = 3 \times 10^3 = 3000 \Omega$$

$$3000 - 1500 = 1500 \Omega R_s$$

1/2 SCALE = DOUBLED RESIS. IN CRT.

$$3000 \times 2 = 6000 \Omega - R_x = 3000 \Omega$$

3. Voltmeter



$$\frac{1}{5 \times 10^{-4}} = 2000 \Omega \text{ PER VOLT.}$$

$$50 \text{ volts} \times 2000 = 100 \text{ K}$$

$$R = ? 100 \text{ K}$$

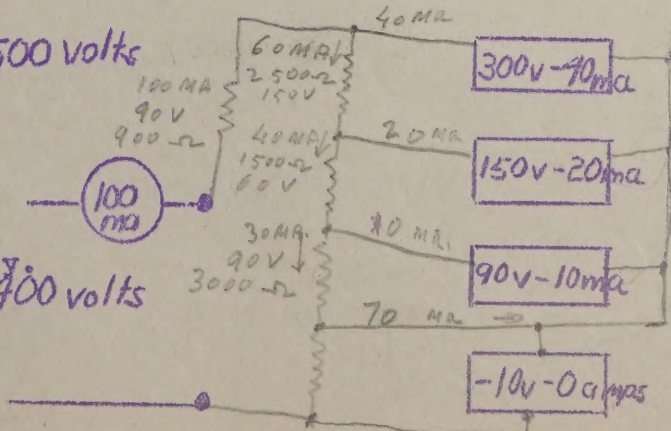
$$250 \text{ volts} \times 2000 = 500 \text{ K}$$

$$R = ? 500 \text{ K}$$

$$500 \times 2000 = 1 \text{ MEG.}$$

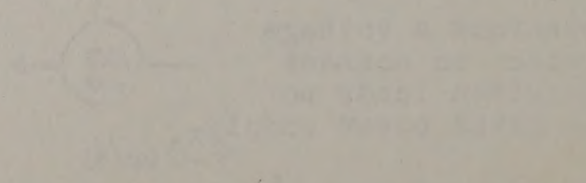
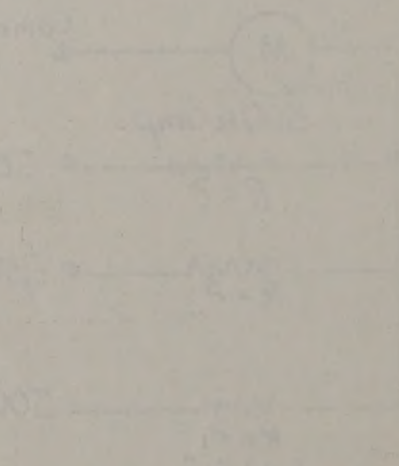
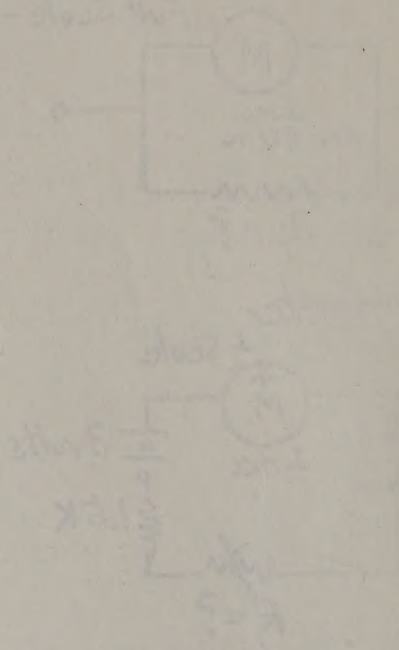
$$R = ? 1 \text{ MEG.}$$

4. Construct a voltage divider to connect the given loads to the rated power supply.



Experiment 1

Ohm's Law - 200 Watts



# Electronics Examination

5.

A source of EMF measures 200 volts without a load. If a resistor of 5000 ohms drops the voltage to 150 volts, what is the internal resistance of the EMF?

$$\frac{1.5 \times 10^2}{5 \times 10^3} = 3 \times 10^{-2}$$

$$\begin{array}{r} 200 \\ - 150 \\ \hline 50 \text{ V.} \\ \text{INTERNAL} \\ \text{DROP} \end{array}$$

$$\frac{50}{3 \times 10^{-2}} = 1667.00 \Omega$$

$$\begin{array}{r} 5000 \\ \times 3 \\ \hline 15000 \end{array}$$

Solve the following with answers to one significant figure times the proper power of ten (slide rule accuracy) - Save work sheet

Multiplication

⑥  $528 \times .00068 \times 55 = 1.97 \times 10$

⑦  $10^{-8} \times 10^4 \times .00694 = 6.94 \times 10^{-7}$

-4 ⑧  $901 \times 1.6 \times 10^{-4} \times .01 = 1.44 \times 10^{-2}$

Power of a Power

⑬  $(10^{-5})^2 = 10^{-10}$   $-5 \times 2 = -10$

⑭  $(10^{-4})^{-3} = 10^{12}$   $-4 \times -3 = 12$

Division

⑨  $\frac{1}{6.28 \times 900 \times .01 \times 10^{-8}} = 1.78 \times 10^6$

⑩  $\frac{1}{6.28 \times 15 \text{ meg} \times 6 \times 10^{-3}} = 1.78 \times 10^{-6}$

⑪  $\frac{620 \times .0056 \times 10^{-5}}{9.7 \times .01 \times 25000000} = 1.43 \times 10^{-11}$

-4 ⑫  $\frac{10^{-9}}{60 \times .00023 \times 10^9} = 7.35 \times 10^{-3}$

Square Root

⑬  $\sqrt{369000} = 6.08 \times 10^2$

-4 ⑭  $10^{-5} \sqrt{.6000798} = 8.9 \times 10^{-2}$

⑮  $\sqrt{9.7500 \times .005 \times 10^6} = 2.2 \times 10^4$

1. A resistor of 100 ohms is connected in series with a 100 volt source. What is the voltage across the resistor?

2. The following with answers to one significant figure are given power of the (state the quantity) - find the quantity.

Power of a source

Multiplication

(10<sup>-2</sup>)

2.5 x 10<sup>-2</sup> = 0.025

(10<sup>-3</sup>)

10<sup>-2</sup> x 10<sup>-3</sup> = 10<sup>-5</sup>

10<sup>-2</sup> x 10<sup>-3</sup> = 10<sup>-5</sup>

Division

2.5 x 10<sup>-2</sup> / 10<sup>-3</sup> = 2.5 x 10<sup>1</sup>

2.5 x 10<sup>-2</sup> / 10<sup>-3</sup> = 2.5 x 10<sup>1</sup>

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